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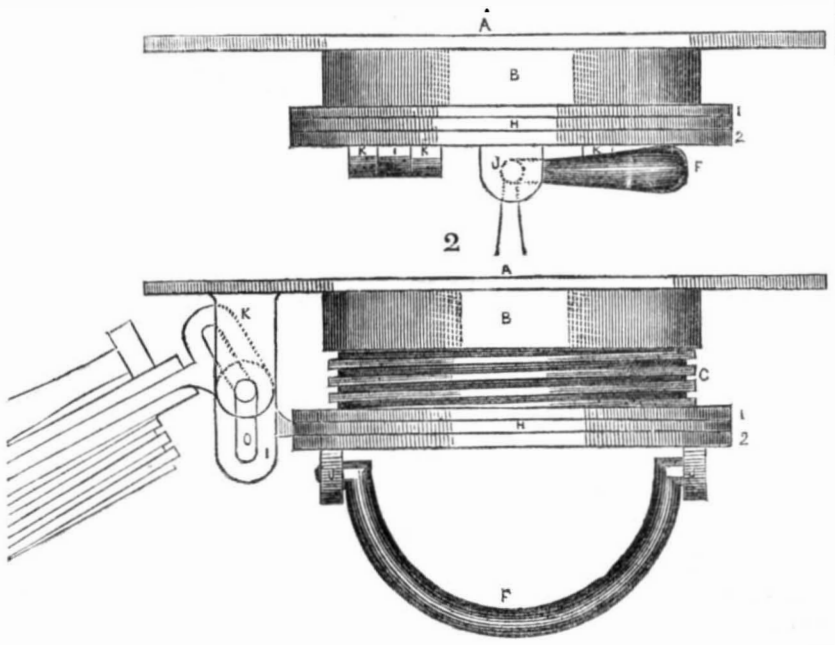
Rail-Road News.

National Road to the Pacific.

Senator Benton has introduced a Bill into the Senate, for the construction of a great National Road to the Pacific. The Bill has been read twice and referred to the Committee on Roads and Canals, and ordered to be printed. The leading features of this Bill are, that "a district of territory, 100 miles wide, and extending from the western frontier of Missouri to the Pacific Ocean, and corresponding to the central latitudes of the United States, shall be set apart and reserved for opening communication with California, Oregon, New Mexico, and Utah"—the road to run from St. Louis to the Bay of San Francisco, with branches to Oregon, Santa Fe, and the Great Salt Lake—the branches only to have 50 miles wide reserved strips for *their* construction. This road is to be constructed by Government, and to be free from all monopoly of individuals, and to be free, to all intents and purposes, for ever, to our citizens, who are not to pay any more toll than what will pay the road expenses. There are to be three roads constructed—one a railroad, one a wagon or carriage road, the other for foot passengers, and a strip to be reserved for a line of telegraph. The bill proposes that the work shall be commenced at once, after due reports have been made on the best route, and that government shall advance money ($300,000) to commence the work, but the lands set apart are ultimately to pay the whole expenses.

In introducing the Bill, Mr. Benton made some capital remarks on the same, and presented much important information. He said that there were plenty men in the West, the hunters, who knew every footway of the road, and by employing them, they could stake it out "as fast as a horse could trot." "There is an idea, he said, "become current, of late, that none but a man of science, bred in school, could lay off a road—that is a mistake: there is a class of topographical engineers older than the schools, and more unerring than the mathematics. They are the wild animals—buffalo, elk, deer, antelope, and bear. They traverse the forest not by compass, but instinct, which leads them always the right way to the lowest passes in the mountains, and the shallowest fords in the rivers—the best pastures, the salt springs, and the shortest practicable lines between any two points—they travel thousands of miles and never miss the best and shortest route. They are the first engineers to lay out a road in a new country, the Indians follow them; then the white hunters in pursuit of game, then the buffalo road afterwards becomes the wagon road of the white man." Col. Benton has been informed, by hunters, that there is a way for a direct road to the Pacific. He stated that the National Road over the Alleghanies,—the military road of Gen. Braddock,—was an old buffalo path, so was the other National Road down the Valley of the Kenhaua.

IMPROVED SHIPS' WINDOWS.---Figure 1.

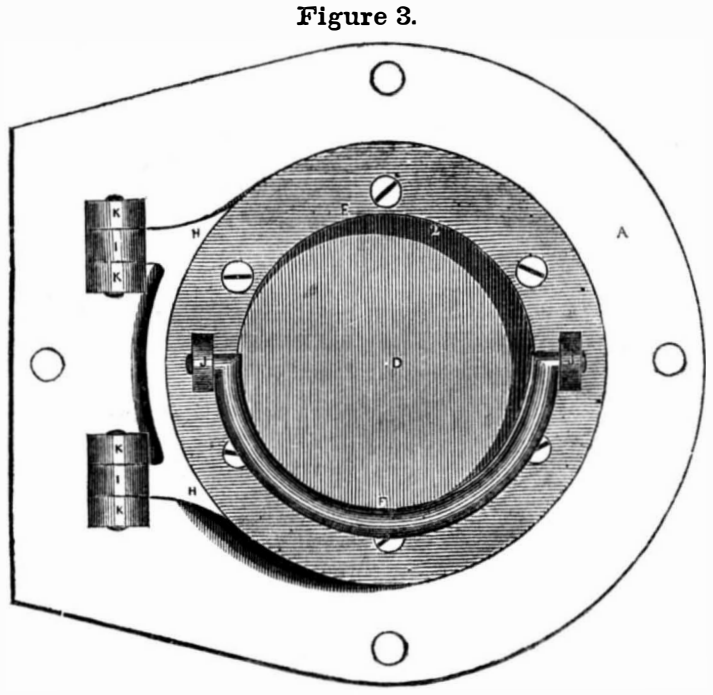


This improvement is the invention of Mr. Leonard Goodrich, No. 636 Water street, this city, who has applied for a patent.

Figure 1 is a side view, with the window screwed close down. Figure 2 is a side view, showing the screw of the window, also a part of it thrown open to show the slot in the hinge. Figure 3 is a plan view, or as the window appears when closed, to a person looking on the side of a vessel. The same letters refer to like parts.

The old ship windows were fastened by hinges to the metal flange of the window tube, and they were held by bars or bolts. This invention secures the window by a screw, fitting into the window butt, and it has hinges the same as the old window, but these are made with a slot, to allow the window to be screwed out and in. A is a metal flange secured to the vessel by bolts; B is a tubular butt attached to the flange, A; this butt has a thread cut on it, inside, like the butt of a hose; C is a screw on a tubular part of the sliding window, 1 2, are circular ring plates united together inside. The glass, D, is in the inside one, and the outside one, E, holds the glass. The screw is part of the ring, 1. H is another ring plate, which is held in a recess formed between the plates, 1 2. This plate, H, branches off with flanges at the back, as shown in figure 3, which terminate in hinge eyes, or loops, I I. On the flange, A, are other projecting stationary hinge loops, K K K K. A pivot or stud passes through the loops, as represented in fig. 3, thus forming the two huge joints of the window. The flange, H, has an elongated slot, O, in it, as shown in figure 2, (that part shown in section.) It will be seen that when the screw is screwed in by the handle F, the ring of the flange, H H, will not turn round, but will be merely raised up or pressed down by the act of screwing the window into its butt. The slot, O, allows the hinge or loop, I, thus to work on its stud or pivot. The lid or cover, with the light, has three motions—one round about, the other out and in (reciprocating) and the other to turn outwards and inwards on the pivots of the hinges; J J are box bearings for the handle, F.

Figure 3.



This improvement is a good one; every person acquainted with the working of ship windows, who has seen it, has spoken favorably of its qualities. It must take, because it is doubly secure. The hinges might be broken off, or the pivots injured, yet the window would be as fast as ever in its seat.

Persons wishing more information can obtain the same by letter, addressed to Mr. Goodrich, directed as above, who will promptly answer the same.

Preparatory Size.

Boil a handful of the leaves of wormwood and two or three heads of garlic in a quart of water, until the liquid is reduced to one-half; then strain it through a cloth, and add half a handful of common salt, and nearly half a pint of vinegar. The design of this composition (usually employed in gilding looking-glass and picture frames) is to obviate the greasiness of the wood, and prepare it the better to receive the coats which are to be laid on, and to preserve it from the ravages of the worms. When used, it is mixed with a sufficient portion of good glue, boiling hot. In applying it to the gilding of plaster or marble, the salt must be left out of its composition; as, in damp situations, this would produce a white saline efflorescence on the surface of the gold.

Gold Water Size.

One pound of Armenia bole, two ounces of red lead, and a sufficient portion of black lead, are ground separately in water, and then mixed, and re-ground with nearly a spoonful of olive oil. The gold size is tempered by mixing it in parchment size which is clear and clean, and has been passed through a fine sieve to clear it of all foreign matters. The parchment size is made by boiling down pieces of white leather, or clippings of parchment, till they are reduced to a stiff jelly.

White Coating.

A quart of strong parchment size and half a pint of water are to be made quite hot, and to this are to be added (in small portions from time to time) two good handfuls of common whiting passed through a fine sieve; this mixture is to be left to infuse for half an hour, when it is to be stirred carefully so that the amalgamation may be perfect.

Coloring Yellow.

Half a pint of parchment size is taken, which must be clean, white, and clear, and of one-half the strength of that used for the white coating; this is warmed, and there are mixed with it two ounces of yellow ochre, very finely ground in water; it is then left at rest, and the clear portion decanted, which gives a fine yellow color, that serves, in water gilding, to to cover those deep recesses into which the gold cannot be made to enter; it serves also as a mordant for the gold size.

Vermeil.

This is a liquid which gives to the gold a warm reflection. It is composed of two ounces of annatto, one ounce of gamboge, one ounce of vermillion, half an ounce of dragon's blood, two ounces of sal of tartar, and eighteen grains of good saffron. The whole is to be boiled in a quart of water, over a slow fire, until it is reduced to one-fourth, when the liquor is passed through a strainer of silk or muslin.

Gold Color or Oil Size.

The English method of preparing the color in size, which serves as the ground on which the gold is laid, is to grind together some red oxide of lead with the thickest drying oil that can be procured—the older the better. To make it work freely, it is mixed before being used with a little oil of turpentine, till it is brought to a proper consistence.

To Light Matches in Damp Weather.

It may be useful to our readers to know that matches when too damp to be used in the ordinary way, can be ignited by rubbing them gently, for a few seconds, upon a piece of cork.

Water contained in old cisterns, if it be covered, and some years old, is better than new water.

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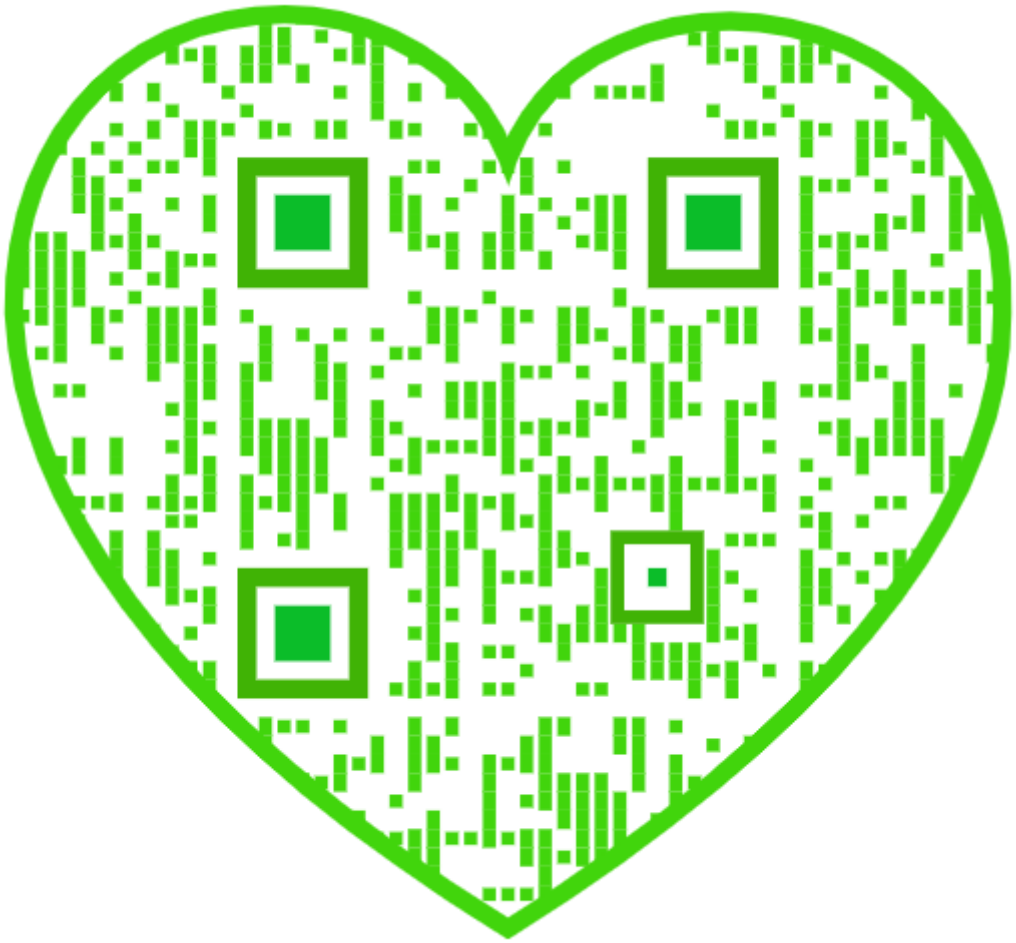

Miscellaneous.

Re-Vaccination and Small Pox.

MESSRS. EDITORS.—Medical men are very often asked if one vaccination is sufficient to protect the system, through life, from Small Pox—or how often is it necessary to have the operation performed. The late Dr. Fisher, of Boston, for a long time gave attention to this subject, and in January last published, with others, the following propositions, which are supported by numerous statistical facts, and are fully relied upon by the profession :—

"That one single and perfect vaccination does *not*, for all time in all cases, deprive the system of its susceptibility of variolous disease.

That one or more re-vaccination *do;* and that, consequently, a physician should recommend re-vaccination, when questioned as to its necessity.

The system is protected from variolous contagion when it is no longer susceptible of vaccine influence, as tested by re-vaccination."

That vaccination will not fully prevent people from taking the small pox, is a fact beyond all dispute, for I was vaccinated, and the pox, I am told, was good—excellent in every respect; yet, when twenty years of age, I was smitten with small pox, and covered from head to foot with the " boils of that loathsome disease." My case was peculiar—I had no knowledge of coming in contact with any person who was infected, and was not in any house where the disease had been. I will remember the evening when I felt the first symtoms; it was in 1834, on Christmas Eve, and I lost a fine social feast by it. In no case, however, does the small pox affect those who are vaccinated as severely as those who are not; I have not a mark on my face, nor was my sickness ever considered dangerous to myself, and I was up and at my business in four weeks from the time I took it. Some would lead us to believe that, after a certain time after vaccination, the whole of its effects disappear from the human system, and the individual who had undergone the process, is as liable to the dangers of smallpox, as those who have not been vaccinnated. This is not true. Of five persons who were smitten with small pox, by contact with me in some way, one died who had not been vaccinated, and the other four (one as old as myself) were but slightly affected in comparison to what I was, for I was literally covered. The nature of vaccination is beyond the ken of doctors—it is altogether a matter of experience—and it was by practical observation, not reasoning, that Jenner discovered the virtues of the *kine* pox. This discovery has been a wonderful blessing to our race, I have heard my grandfather say that, in his young days, you could scarcely see a Eurnpean who was not terribly disfigured with the small pox. It was the terror of the beautiful and gay. The wonder now is, to see people disfigured with this disease.

I have heard an opinion expressed that vaccination was of little benefit to a child before it was weaned. I do not believe this; the four persons of whom I have spoken, were all vaccinated before they were three months old. Many recommend re-vaccination as the only sure means to prevent variloid, or the mild type of small pox. I believe that it should be practiced; but, while I believe this, I also think that if every person born was vaccinated in early life, the small pox would soon be unknown. R.

New York, 1850.

Chart of Chemistry.

We have received from Messrs. Youmans & Burdsall a fine large Chart, which shows at a glance the 16 simple bodies with their compounds, also the binary compounds, &c. The design of this Chart is excellent. We all know how indelibly objects presented strikingly to the eye, fix themselves on the memory. This Chart is an excellent one for schools, because, by it, a knowledge of elementary chemistry will be very easily obtained. For example, Manganese, Iron, Silicon, Aluminum, Magnesium, Calcium, Sodium, Potassium, Oxygen, Hydrogen, Nitrogen, Chlorine, Fluorine, Carbon, Sulphur, and Phosphorus—all simple bodies, are represented in squares of different colors, to represent their quantities by weight, and then on the Chart arranged in proper columns, are different salts and compounds, composed of the substances named, represented by the separate squares of colors.

Thus, Hydrogen is a small lilac square, and Nitrogen a larger blue square; well, when we look to Ammonia, a binary compound, it has one blue square and theee of lilac, which indicates its composition—N.H.3. This chart is highly commended by our most eminent chemists. Its price, with an explanatory pamphlet, is $5.

New York Milk.

In a trial which occurred in this city last week, the following affidavit was made :

Dr. A. K. Gardener sworn.—Is a physician; knows what is callen Johnson's distillery stables, on the North River, at 16th st. (where plaintiffs cows were kept) the stables and distillery occupy two or more blocks; there are in the stables about 1,000 cows, owned by different individuals; they are kept together in rows, without any stalls, head and head, each side of a partition, and two rows in an apartment; they are fastened by the head, have no bed, but lay on the hard floor, which is always very wet, the stables excessively hot in summer and exposed in winter; the cows, after being put into the stable, never come out so long as they continue to give milk, or are not so sick as to require removal; they are fed almost entirely on the hot swill (the boiled grain, after being distilled, mixed with the water it is in) from the distillery, with an occasional whisp of hay, but the latter, after a while they cannot chew, by reason that the teeth of the cows, after being kept in these stables, and fed on the swill, drop out.

The swill runs from the distillery under 10th Avenue, to the stables, where it is delivered in a large vat, thence runs into a trough at the head of the cows. They usually drink a barrel a day of it. The milk is much greater in quantity than grass, or grain and meal fed, but the quality of the milk has 30 to 50 per cent. less of nutricious quality than pure milk. I have obtained specimens and caused them to be analized. It takes much longer than country milk to mingle with other substances, consequently it becomes a foreign body on the stomach, and frequently produces particularly to children, vomiting and indigestion.

I have reason to believe, from my own observation, and what I have heard from other physicians, that its use produces cholera infantum, marasmus, a general wasting away, called consumption, and scrofula. The cows, besides losing their teeth from what I believe to be the hot swill, are subject to a disease of the hoof, so that they cannot bear their own weight, and have to lie down. Cows killed, when so affected, are found to have a concentration of matter extending from the hoof almost up through the leg, and their general health is affected. Cows fed on this swill bloat out, and appear oftentimes, as well as others, but on being killed they are found to have, inside, but little fat, the tallow, for instance, which, in healthy cows, weighs about 30 lbs., weighing but 7 or 8 lbs. Butchers say they can tell the meat blindfolded by the smell, wherever it is. It has a bad odor.

When sick, the cows are fed, sometimes with meal. I am told no water is ever given them, not being supposed to require it, drinking a barrel of swill per day. There is very little substance in it.

Testimony like the above was given in by Drs. Reid and Griscomb, and in view of it, we may ask, "Do we live in a civilized age and in a christian land?" In some things we are as bad, if not worse, than pagans and barbarians. If there can be remedial measures enforced to remove such evils, then we say, our civilization is a mockery, our religion of no effect.

The trial, in this case, was between Edward Langhman, plaintiff, and D. D. Howard, of the Irving House. The jury decided in favor of Mr. Howard, who deserves great credit for thus exposing the iniquity of the swill milk system. We hope that measures will be now taken to punish those who sell such milk.

The London Athenæum and the Patent Journal.

The Patent Journal, of Nov. 23rd, opened a brave broadside on the Athenæum, about a charge which it made against patent agents, making out vague titles to patents from unworthy motives, and which it rejoices will now be prevented by the late decision of the English Attorney General, requiring all applicants, (as we do in America,) to present full drawlngs and descriptions of their inventions. It seems that the charges of the Athenæum are untrue, and exhibit a great amount af ignorant prejudice. The London Patent Agents have always been the prime movers and advocates for judicious reforms in the Patent Laws. We believe the Patent Journal in every word that it utters; it is as much for the benefit of Patent Agents as it is for inventors to have good Patent Laws; there are some men so totally devoid of common sense as to imagine that Patent Agents are benefitted by bad Patent Laws. This sentiment has been expressed at home here, and by one who knows better. It is a fact, in America as well as in England, that some Patent Agents have been the most forward in the advocacy of inventors' rights; and is it not natural and just that they should be so? Yes. The better patents are protected, the more patents will be taken out, and the more valuable must they be, consequently it is better, both for inventors and their clients. We defend the rights of all inventors, upon the natural principles of honest and exact justice to all men; we did so before we were Patent Agents, and would do so still, if we were not. There may be dishonest Patent Agents, but the truth will come out against them in the end, "honesty is the best of all policy." A Patent Agent merely works for inventors, and it is right that he should be faithful, and it is natural, if he is a fair man, to feel interested in the welfare and prosperity of those for whom he does business.

Complimentery.

The following commendatory notice of the "Scientific American," we copy from the "Watchman" published at Norristown, Pa. In returning our thanks to brother Fry, for expressing so favorable opinion, we would add that we fully endorse all that he has said. Read, read :—

"SCIENTIFIC AMERICAN.—This valuable paper is a regular visitor to our sanctum, and among our whole list of exchanges there is no paper that we open more eagerly. Its columns are always filled with the most interesting and valuable articles upon science, art and inventions. As a scientific journal, we think it has no equal in the United States. In addition to the amount of other interesting information it publishes, it also contains, weekly, an official list of Patent Claims, prepared expressly for its columns, at the Patent Office, which of itself is worth the subscription price. No mechanic should be without a copy."

Errata of Patent Claims.

For two weeks past there has been perpetrated the error of heading our List of Patent Claims Nov. 27. Last week the claims were for Dec. 10, the week previous for Dec. 4. We will take care that such errors will not be found in our columns again.

Mixture to Color the Hair.

MR. EDITOR.—I have seen it stated in a number of papers, and once in the Scientific American, the mixture of sugar of lead 1 drachm, lac sulphur 2 drachams, rose water 4 oz. was employed by Gen. Twiggs for his hair, which converted his snowy locks to a beautiful brown. Now I wish to know if this lotion will restore white hair to its original color.

New York, 1850. J. B.

[The best way to find out, is to try the experiment; this can easily be done. The only reason why this lotion may color hair, is based upon the well known fact, that sulphuretted hydrogen will turn lead black; and it is well known that we have in this lotion all the elements to produce such an effect. But in opposition to this supposition, we know one case when this lotion was tried for three weeks, and although it was stronger than the composition made from the above component parts, yet it had only the effect of making the hair harsher and gave it an offensive odor, but never altered the color a single shade.

The nitrate of silver is the substance used to color hair black. We advise no one to use it; no one should be ashamed of grey hair, nor vain of a bushy red crop—happily we are not.

Letter from Mr. Paine.

MESSRS. EDITORS—I notice in your last journal, that Mr. Faraday, at the last meeting of the Royal Institute, announced his discovery that oxygen was magnetic. In the month of June last, Charles D. Archibald, Esq., of London, and a pupil of Faraday's was at my house, and I, among other things connected with my discovery, stated to him that both gases, (hydrogen and oxygen) were magnetic, that oxygen was intensely so, and the discovery of these properties I made among my first experiments, nearly six years ago, as I can fully establish by several individuals. I have not the most remote intention of accusing Mr. Faraday of collusion with Mr. Archibald, both gentlemen I hope to ever rank among my best friends, and I know that both gentlemen will most cheerfully award me the priority of discovery, when the force of my evidence is felt.

Yours, HENRY M. PAINE.

Worcester, Dec. 21, 1850.

[We have received an article on Mr. Paine's Light, from Mr. E. Wright, in the Boston Chronotype, which we will notice next week.

New Photographic Process on Paper.

At a recent meeting of the Paris Academy of sciences M. F. Bousignes described a new process of preparing photographic paper of which the following is a description :—

Any kind of well-made slightly glazed paper is applicable for this purpose, provided it be free from creases and metallic spots. Take three leaves of paper which have been successively plunged into distilled water, and spread them on the glass plate of the camera, taking care to ensure their complete adherence to each other at every part by means of a fine linen cloth. Place on the others the one which appears to be the best adapted to receive the luminous impression; the others serve only for the purpose of moisture and adherence. When this humidity has disappeared, let fall three or four drops of a solution of neutral nitric of silver on the paper, and spread it quickly over the surface by means of a camel-hair pencil. The traces of this solution will entirely disappear in a few instants, leaving only the appearance of a slight vapor on the paper. The paper must now be treated in the same way as the metallic plate. The vapors of iodine and bromide of lime give to it a great sensitiveness, but it will be necessary to expose it it for a longer period to the vapors of this latter substance. The time of the duration of each process is as follows :—First iodine process, fifteen seconds; bromine process, thirty-five seconds; second iodine process, ten seconds. The glass plate is then placed in the camera, and exposed to the light, which takes effect on the paper with almost the same rapidity as on the silver plate. The mercury causes the image to appear. If the operation be well done, and the exposure to light well regulated, a positive image is obtained, which will bear comparison to that obtained on the metallic plate, and certainly much superior, on account of the softness of its tints, to the ordinary gallic acid process.

Air.

From closed jars, buried for seventeen centuries in the ruins of Pompeii, the air has been taken and analyzed by chemists, who found it to be identical, atom for atom, with the air we breathe.

A log of Cuba mahogany, in Messrs. Pell & Co.'s sale, in this city, last week, brought one dollar and ninety-two and a half cents per superficial foot. Another log, about ten feet long, sold for five hundred and sixty dollars.

62,137 hogs arrived in Cincinnatti last week. What State can beat the Buckeye for raising pork?

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Astronomy and Mechanical Genius.

The history of astronomy for the past fifty years has been entirely unlike the history of the same science as presented by any previous epoch. The spring, the force, the energy, with which it advanced within that brief period, distinctly manifest that some separate general cause characterized the last fifty years, which did not exist, at least in degree, at any previous epoch. Some facts might serve to illustrate the question. For example previous to the commencement of the present century, there was scarcely an observatory in existence which published its records. Few, indeed, existed at all; and those existing were rather two or three private establishments than establishments of a great public character. Greenwich was the solitary observatory whose regular records extended much beyond the commencement of this century. Now, instead of observatories being strange things, why, there was scarcely a third-rate town in any country in the civilized world without its establishment of that description. Many of them, indeed, have no funds for the publication of their records; but they were still furnished with excellent instruments, and were more or less efficient. The question he would ask was, what was peculiar in the beginning of the century to give rise to that extraordinary spur in regard to the progress of the science? Doubtless we have had one or two men of eminent genius—such as Sir Wm. Herschel—and the labors of such a man could not pass away without a distinct, and clear, and permanent mark upon the sciences which he had cultivated; but still he belonged to one nation, and the advance has characterised the entire scientific world. In the first place, the immense advance of observatories was characteristic of the early portion of the present century in its relation to astronomy; because mechanical genius came powerfully to the aid of practical astronomy. Previous to that time, instruments of various power, and with different glasses, had been used to unveil the celestial motions and aspects. They were well made, but were without any large or comprehensive object, and with reference only to the limited and single purpose they had been designed to fulfil. The instruments were planned, not by men of mechanical genius, but by astronomers, and were only intended to fulfil their immediate use. Still, though they were not by any means perfect, they were able, to a certain extent, to correct their own errors—a great principle, the adoption of which has met most eminent success in the case of Lord Rosse's telescope. Unless such a revolution had been accomplished, not one step could have been taken towards the completion of those marvelous discoveries regarding the celestial mechanism, the laws of the siderial universe, and the double and multiple stars which had surrounded the beginning of the century with imperishable luster. Immediately upon the back of the revolution in the structure of the instruments, there came another in the mode of their use—an idea that was introduced by the celebrated Bessel. He determined to test the instruments by a comparison with nature itself, and this was effected by placing them against some fixed point; and so, after a long and minute inquiry, it was discovered whether they were correct or not, or rather their errors were discovered. But not only were the rude metallic instruments subjected to examination in that way, and their errors discovered, but the astronomical discoverer himself was subjected to examination in the same way, and his errors discovered—not his casual errors, but the errors to which, from his nature, from some peculiarity with reference to the structure of his senses, he was also subjected in observing—termed, in astronomy, personal equation. No single observation, however, could be perfectly accurate: and hence no observation or result was supposed to be correct unless after a great number of observation had been made upon it, although most extensive analytical theory, derived from the highest analytical mathematics, was applied to the solution of complex problems, and was generally known as the method of squares. He thought they might draw from these facts at least one general conclusion—was it possible to omit observing that the entire success, or at least the rapid advances of astronomy had been traceable, if they are traceable to any general cause, to the aid it had received from other branches of inquiry? The signal advance of the mechanical arts and the prevalence of mechanical genius gave the first step, and something like metaphysical or analytical observation followed it up In conclusion, rude and vulgar as mere mechanicism is often termed, he had no doubt that the electric telegraph, or at least similar machinery, would yet be made to increase the accuracy of their observations, in as far as times was concerned, at least ten-fold. It was hoped, also, that light might be made to mark down the phenomena of the instant; and he had himself heard Mr. Airy, the Astronomer Royal, express his conviction at the late meeting of the British Association, that the whole of the phenomena at present done by the eye would at no distant date be accomplished by light—by the daguerreotype. The breaking down of the supposed barriers between the different sciences, and their common interfusion, was an emphatic illustration and a pre-eminent characteristic of the present age. He had no doubt that the farther we advanced, the more firmly would the truth be impresed upon us—that the rapidity of the advance of knowledge would depend upon the aid taken by one science from another. It seemed to him that the most memorable feature of our times was unquestionably its correct appreciation of that far-seeing truth; and it was from that circumstance that the type and scientific representative of our age would stand out in all time coming—Alexander Van Humboldt.

[The above is an extract from a recent lecture of Prof. Nichol, the eminent Astronomer, taken from the Glasgow "Daily Mail."

Correspondence from Siam, East India.

BANGKOK, SIAM, Aug. 3, 1850.

MESSRS. MUNN & Co.—In the Scientific American, for May 19, 1849, there is an article headed "A Royal Siamese Machinist," in which it is stated that His Royal Highness, T. N. Chaufa Kromakun, (sometimes called T. Momfanoi,) had built a small steamboat. It appears, from the said article, "that the engines and boat was built under the most indefatigable and persevering exertions on his part, and the Siamese can now boast of having running on the Menam river, a steamboat, every portion of which has made and manufactured there, and entirely by natives." Were this statement true, the Prince and the Siamese might well "boast," but, in fact, it is only about half true. The munificent present said to have been given to the Prince by the King, was less than $150; and, although "His Majesty has honored him with his command to have another steam-vessel constructed, sufficiently large to be capable of proceeding to Singapore," yet it has never been built. The copper, said to have been ordered for new boilers, never came, and it is probable that those who received the order, feared to execute it, lest they should never get their pay.

The article closes with the statement that "the workmanship of even the most minute part of the engine is truly admirable, and reflects the greatest credit on its royal constructor, who had every portion of it made under his own immediate superintendence and constant inspection, and by workmen all *self-taught*, being His Highness's body servants and retinue!" In building said engines, I was often consulted, and my instructions followed. We occasionally find self-taught mechanics in enlightened countries, who are good workmen; but to suppose that self-taught men among the heathen can build steam engines, is out of the question.

But neither the Prince nor his servants are self-taught. When I came here, in 1843, I brought with me a small slide lathe, and after setting it up, turned some iron and made several tools for the Prince, and finally sold it to him. The Prince then requested me to aid him in building a machine shop, lathes, tools, &c., which I did, and instructed the Prince and his servants in the use of tools, and aided in making some small machines. This was done in 1844. After the shop and tools were completed, the Prince wished to build a small steamboat. I made a model for engines of wood, but the Prince wanted something better, and I remitted about $200 to England, and procured a working model, with boat complete. When the vessel, which brought the model, arrived off the bar, the Prince could not wait for the vessel to come up to the city, and urged me to go in the rains to get it. Wishing to please the Prince, I complied with his request, although it made me quite unwell for several days.

It would be natural to suppose that a rich Prince, after having received so much attention and aid, would endeavor, in some way, to reward his benefactor. The time spent in assisting the Prince could not be estimated at less than $500, but all that was ever given by way of remuneration, were a few trifling presents, worth, altogether, about $25. I tried very hard to get the pay for the steamboat model, soon after it arrived, but the Prince put it off from time to time, and I did not get it until after about two years.

Enclosed is a short notice of the Prince's boat, and a new machine shop, taken from the Bangkok Calendar for 1849.

I have received the Scientific American from Vol. 2, regularly, and am much pleased with it. Wishing you abundant success in your efforts to circulate mechanical information, I remain, yours truly,

J. HASSETT CHANDLER.

[We here publish the two extracts spoken of above:—

STEAMBOAT.—In our Calendar for last year (1848) we stated that H. R. H. Prince T. Momfanoi had established a Machine Shop. The individual who aided the Prince in establishing his shop, sent to England and procured a working model of a steamboat, from which the Prince has recently built a small Steamer. The engines are neatly made, and are an exact copy of the model. No suitable materials for a boiler could be made or procured in Siam, and the boat does not sail very fast. Materials have been ordered for a new boiler and we may yet see a steamer sailing on the Menam at a fair speed.

NEW MACHINE SHOP.—We are happy to announce the establishment of another Machine Shop in Bangkok. It has been built by Mai Mot, son of a Siamese Nobleman. This man has shown much skill and good taste in making and arranging the tools for his shop. He has received some assistance from the indivdual who aided the Prince in establishing his. An engine lathe has been built under the superintendence of this person for the use of the shop, which would do honor to any similar establishment in Europe or America. Mai Mot has made some improvements in the Electrotype the past year which, if known abroad, would do him much honor. These improvements are a source of encouragement, and we hope the Siamese will not only improve in mechanics but in religion.

[We have, here, two sides to a story, and we believe that the above, from our correspondent, is the correct one—it has the stamp of truth upon its face.

Chaldean Agriculture and Drainage.

At a recent meeting, the Farmers Club, Eng., the secretary read the following very interesting letter, which he had received from Mr. Kennet Loftus, formerly of Newcastle, and now in the East, assisting in the survey of the limits of Turkey and Persia:—"Dizful, Persia, August 3. 1850.—Sir,—While making some investigations at the seldom-visited Chaldean ruins of Sinkara, in the interior of Southern Mesopotamia, I ascertained a fact that may not prove uninteresting to the farmer. As lately a member of the Newcastle-upon-Tyne Farmers' Club, I beg to submit to your judgement if it be worthy to be mentioned at one of the meetings. There is an old saying, that 'nothing is new under the sun,' and truly such would appear to be the case. Will it be credited, that the learned nation of the Chaldeans used draining tiles of precisely the same form and materials as the farmers of our own enlightened land of Britain have only a few years ago adopted for the more complete drainage and consequent improvement of their land? Observing several brick-built square holes, of about four inches in diameter on the surface of these curious ruins, I carefully examined one of them, and discovered that it formed the entrance to a drain of considerable depth. On removing the bricks, I found a cylindrical and well-baked pipe or tile, of reddish clay, a yard in length and five inches in diameter at the centre, tapering slightly towards the extremities. It rested nearly horizontally, with one end over the aperture of a large bell-shaped clay pot, exactly resembling those used in English gardens, and known by the name of 'rail pots.' The other end of the pipe was met by a spout-formed tube of similar material, but in a sort of curved shape. The 'rail pot' was about one yard deep, and a foot and a half wide at the base. The shaft of the drain was lined with large cylinders of baked clay, four inches in thickness and about three or four feet high; they are piled one upon another, firmly fixed together, and thus formed a continuous pipe from the bottom to the top of the drain. They were in most instances, as perfect as when they were there deposited many centuries ago. Around the exterior of the drains was a wall of brick, which retained the cylinders in their position, and preserved them from external pressure and injury. How effectually the Chaldees must have kept the rats from their drains! I observed similar cylinders in wells here, and also at the neighboring ruins of Warka. Are cylinders of this description made use of at home, for the purpose of lining drains and wells? If not, could they be so advantageously employed?

Fall of a part of the Horse-Shoe at Niagara Falls.

On Tuesday evening last, says the Niagara Fall Iris, our citizens were startled by hearing a loud and terrible noise, resembling, as near as we can describe it, the heavy booming of artillery, in quick succession, which shook the earth very sensibly. It proved to be a part of the Horse-Shoe Fall, on the Canada side, which had fallen, carrying away about ten rods of the rock in length, by four in width. The canal boat, which had been lodged for the last few months on the brink of the rock which has fallen, and which has excited the admiration of all who beheld it, was also carried over with the rock. It is now in the whirlpool, two miles down the river, dancing attendance to the freaks of that great mælstrom. The crash occurred about 7 o'clock in the evening; and it is indeed providential that it fell at such an hour, and at this season of the year: had it been in the summer, when so many thousands of strangers are here, there undoubtedly would have been persons crushed to death; for it is precisely the spot where so many continually passed, and where so many have stood to contemplate the grandeur of nature, and behold the waters of the mighty cataract above them rushing terrifically over their heads, that is now filled with the masses of rock which have fallen from above. The loss of this portion of the rock has not in the least diminished in appearance the view of the falls, but has added to the scene, which looks grander and more sublime, if possible, than ever.

Spontaneous Combustion of Cotton.

The destruction of cotton in this city, by fire originating in cotton stores, has become so great as to demand serious attention. The loss from this cause, in eleven fires occuring here and in Brooklyn, during thirteen months, has been estimated at about a million and a quarter of dollars. Hence there is a disposition among Insurance Companies to increase the rate on cotton risks.

Experienced underwriters entertain the opinion that fire arises spontaneously in cotton stores, and strong circumstantial evidence can be produced in support of their opinion.

Wealth of Trinity Church.

The Corporation of Trinity Church, of this city, is the richest in this country, and may be said to be amongst the richest churches in the world. Its property is estimated, if we are correctly informed, at from twelve to sixteen millions of dollars.

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New Inventions.

Patent for Hardening Oil for Making Candles.

This patent was granted to Carl Wilhelmn Schindler, of New York City, on the 5th Nov., 1850.

SPECIFICATION.—The nature of my invention consists in imparting to every kind of fat and oil, without separating the stearine from the oleine, such a degree of hardness that it can withstand a heat of at least 135° Fahr., without melting, even in water heated to that degree; I obtain this in the following manner:—

I take one hundred pounds of fat or oil, melt and heat it to 210°, Fahr., when it is heated to this temperature, I add at least (in hardening oil more, according to the quality of the oil,) 10 pounds of vegetable wax, (cera japonica,) and 1 pound of gum elemi, cut in small pieces, and keep it some 15 to 18 minutes over the fire at a heat of 210 to 220°, constantly stirring it until the whole is entirely dissolved and mingled together; let it cool down to about 178°, when it is fit to be poured, moulded, or cast in any form or pattern requisite, from which it is to be taken away, after 10 or 20 minutes, according to the warmth of the temperature; and after having entirely cooled, acquires the degree of hardness above mentioned.

As the advantages of my invention will be most obvious in the manufacture of candles, I will show some of them with reference to such manufacture:—First, any kind and any quality of oil—for instance, tallow, lard, whale oil, cocoa nut oil, palm oil, rape seed oil, speilt butter, &c., can undergo the process of hardening invented by me, so that in any country, the cheapest of these substances may be used for that purpose.

Second, The degree of heat to which fatty or oily substance, prepared from my invention, can be exposed, as above stated, is such that the product of my invention will suffer no change when fabricated in, transported to, or used in southern climates, and even in the hottest summers.

Fat, so often thrown away in our southern States in summer time, spoiled butter, rancid oil, can be prepared, according to my invention, at any place in the South, and thereby substances can be made fit for use which otherwise would prove entirely useless.

Third, Candles made after the principle of my invention will burn brighter and better, and will not run; and, besides all these advantages, they will be comparatively cheap. One hundred pounds of common tallow candles, made after the most improved manner in our factories, will cost $8; as 100 pounds of tallow, at 7½ cents per pound, costs $7,50, and the manufacture costs 50 cents. The cost of 110 pounds of candles, made after my improved invention, is the following:—100 pounds of tallow, $7,50; 10 pounds of cera japonica, $1; 1 pound gum elemi, 10 cents; manufacturing, 50 cents—total $9,10. The cost of one pound of these is, therefore, 8 3-10ths cents, while that of common tallow candles is 8 cents, and the former are worth at least four to five cents per pound more than the latter. In case a poorer quality of fat or oil is used, the cost of the production of candles is still lessened—five cents would be the highest price to be given for a pound of such substances; the highest cost of 110 pounds of candles, made out of these, would, therefore, be $6,60, or six cents a pound, for which a good looking candle may be made, which burns well in any, even the hottest climate, and which is at least two cents per pound cheaper than the commonest of tallow candles.

New Barrel-Making Machinery.

We shall publish engravings, next week, of Mr. Hutchinson's improved Barrel-Making Machinery, which has been justly allowed to be one of the best improvements made in 1850.

Improved Gate.

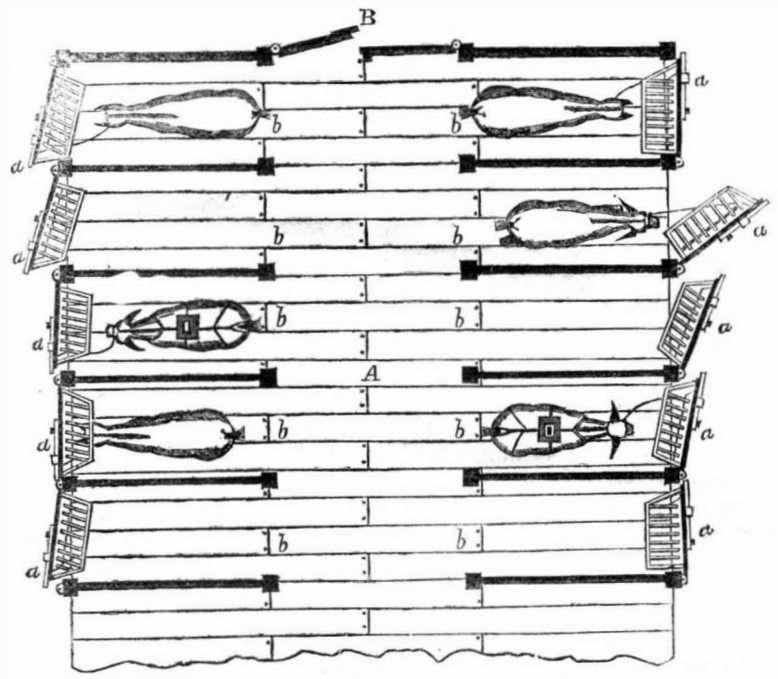
Mr. A. Hotchkiss, of Schenevus, N. Y., has invented and taken measures to secure a very useful improvement on Gates: the gate opens both ways to the same advantage.

Improved Cultivator.

Mr. Anderson Teal, of Genesee, Livingston Co., has invented and taken measures to secure a patent for an improved Cultivator, which will, no doubt, soon come into general use. It has wheels upon it, which are so arranged that the axle is attached to an eccentric, inside of the axle bearings, that, by a lever, the wheels, by simply turning over the said lever, can be lifted off or placed on the ground, with the utmost ease. A boy can thus convert it from acting on the ground, to roll along on its wheels—a very useful improvement.

The frame is made of cast iron, the ribs of which are made hollow, and with outside projections, so as to combine strength, durability, and lightness together.

IMPROVEMENT IN THE CONSTRUCTION OF STABLES.



The following is a plan view of an improvement in the construction of stables, and we leave the inventor to describe the same, as we cannot make any alteration without making it the worse for the interference.

DONALDSONVILLE, La., Nov. 30, 1850.

MESSRS. EDITORS—I herewith inclose you a sketch intended as an improvement in the construction of stables, built of wood.

Fires are of common occurrence in Louisiana, and more frequently, on plantations, originate in stables; these accidents are attributable, in many cases, to spontaneous combustion of the forage by fermentation; but whatever may be the causes, the effects are equally deplorable, for in almost every instance most of the animals are lost. Mr. Henry McCall, one of the planters of this parish, lost, by the burning of his stable, 63 mules out of 66, and Mr. Bringier, also of this parish, not 3 months ago, lost, by a similar accident, upwards of 80 mules and horses.

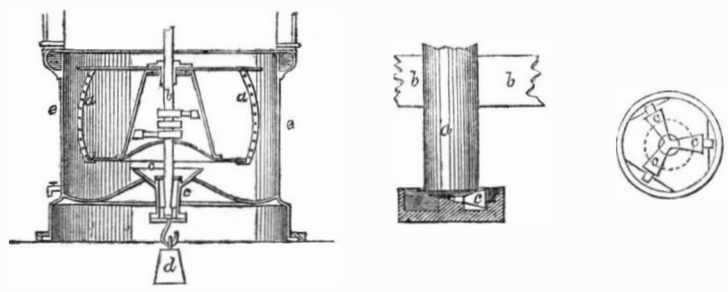
The frequency of these accidents has suggested to me the idea of the inclosed plan, which I transmit to you, knowing that if you judge it worthy of publication, you will not deprive the planters of any information that may benefit them. Many persons here have favorably considered this plan, and are adopting it.

The sketch represents a portion of the stable; A is a large passage through the middle of it, having a large door at both ends, as shown by B, for the common service; *a a a* are small doors in front of each stall, *b*, opening outwards, and bearing the rack and trough, to which is tied the halter of the animal. In case of fire, by opening the little doors, *a*, the animal being gently pulled by the halter, will follow the trough, to which the halter is fastened, without any difficulty, and be led out of the burning stable, no matter how wild he may be. Very respectfully,

LEON J. FREMAUX.

IMPROVEMENT IN THE MANUFACTURE OF SUGAR.

Figure 1. Figure 2. Figure 3.



Knowing how great and important the sugar interests of our country are, we like to present as much new information upon the subject as we possibly can. The accompanying engravings represent improvements described in the specification of the inventor, Mr. Thomas Dickason, of Ayrshire, Scotland, who enrolled his specification in the London Patent Office, in the month of last September, and which was published in the November number of our most excellent cotemporary, Newton's "London Journal and Repertory of Arts," &c. The first part of the invention relates to improvements in the centrifugal machines now used in refining sugar, and is designed to counteract the tendency of the drum to oscilate when in motion, an evil to which they are subject, and which prevents large machines from being used.

For this purpose, the lower end of the drum-shaft is made to work in an adjustable socket, from which a heavy weight is suspended. Fig. 1, exhibits a vertical section of the apparatus. *a* is a drum; *b* is its shaft; *c* is the socket that receives the lower end of the shaft; and *d* is the weight suspended therefrom. *e* is the case, wherein the drum revolves, in the bottom of which a circular hole is formed, to receive the socket, *c*; and this socket is made with a bell-mouthed or hemispherical top or flange, which serves to support the socket in such manner that it can adjust according to the motion of the shaft; in order to prevent oscillation.

The second improvement consists in effectually preventing the oscillation of the drum-shaft of such centrifugal machines, by causing the lower part of such shaft to work in fixed bearings, and the bottom thereof to bear upon several conical friction-rollers, as shown at figs. 2 and 3,—fig. 2 being a vertical section of the bearings, and fig. 3 a plan view of the set of friction-rollers. *a* is the shaft; *b* the bearing; and *c c* are the conical friction-rollers.

The object of the third part of this invention is to render the employment of the centrifugal machines more advantageous than heretofore, in separating crystals of sugar from molasses and other liquid impurities, by making the crystals, which are to be subjected to the action of the machine, of a larger size than usual. This is effected by running the syrup direct from the vacuum-pan into large shallow coolers, each capable of containing from two thousand to three thousand quarts;—the temperature being from 120° to128° Fahr., and the density from 30° to 35° Beaume.

Another part of the invention relates to decolorizing sugar in moulds, by the employment of a cloth laid upon the large end of the sugar loaf, upon the top of which, again, there is laid a piece of sponge, about two inches thick. The sugar loaf is laid with its narrow end downwards, and the sponge is supplied, from time to time, with filtered water from a watering pot, for two days. The water oozes gradually through the sugar, and completely decolorizes the sugar. Before the water is applied, however, the sugar must have been, what is termed among refiners, "twice liquored." The solution for this purpose is composed of syrup and water, in the proportion of two quarts of syrup, of the density of 34° Beaume, and one quart of water, for every 20 lbs. of sugar to be operated on.

The centrifugal machine may be very usefully and successfully applied to the drying of salt. Salt may also be purified like sugar, by moistening the salt with water, placing it in the drum and setting it in motion.

Head Rest for Railroad Car Seats.

Mr. Alonzo Isbell, of Norwalk, Conn., has invented and taken measures to secure a patent for a new improvement on car seats, which will be very useful and convenient to all who use it. The improvement consists in a moveable pad for the head to rest upon, which is made to be carried by any person, and can be attached to the back of any railroad car seat, &c., and raised or lowered to the proper height for the head, either to recline for ease or to take a comfortable nap when travelling, or otherwise. The rest is a pad, which slides in a sheath (folded up) and having a ratchet cut on its rod, is held by a spring at any desirable height. It can also be permanently attached, but its convenient qualities lie in being portable, whereby it clasps on to the back of any car seat, for the benefit of all whom it may concern.

Barnum's Planing Machine.

On our advertising page there is offered for sale the Patent Planing Machine of Mr. Daniel Barnum, of Philadelphia. We request the especial attention of all those who are engaged in the business of planing lumber, to that advertisement. An engraving of this machine was published in No. 18, Vol. 4, Scientific American. It was patented after that, and has been the subject of litigation in Philadelphia; Judge Kane granted an injunction, and it was raised afterwards and brought to a jury trial, when it was left undecided—eleven of the jury being in favor of this machine, as being no infringement of Woodworth's, and one against. We have never seen it in operation, but disinterested persons who have seen it, have spoken to us of its good qualities, stating that "it produced the best work of any machine they ever saw in operation."

Keep the Feet Dry.

At this season of the year much seed of consumption is no doubt sown, by individuals not using proper precaution in protecting their feet from the cold and damp ground, which is so universally saturated with water by autumnal rains. To those who regard their health and lives as paramount to any thing else, which all should do, we would say, read the advertisement of Mr. Townsley, in another column, headed "Water-proof Blacking." We have used the article made and sold by Mr. T., and we have found it to possess all the qualities recommended by him in his advertisement.

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Scientific American

NEW YORK, DECEMBER 28, 1850.

The Supply of Cities and Villages with Good Water.

The subject we have chosen for making a few remarks, is one of vast importance. Fire, air, food, and water are essential necessaries of life. In some climates fire might be dispensed with, but in no country or climate can any man dispense with either one of the triune necessaries, and live. Water is so essential to health and happiness, that its first and paramount claims relate to its uses as a supporter of life. We cannot eat a meal but water forms seven-eighths of it, and we cannot inhale a breath but it is moistened with two or three per cent. of the same element; our bodies are composed of seven-eighths of water, and a knowledge of this fact gives us some insight into the causes of those terrible deliriums and excruciating torments which men are reported to have suffered, who have been long deprived of its use.

It requires no argument to prove that the water which man needs should be pure—the fact is self-evident to any man who has eyes to see, ears to hear, or sense to taste. The prince, surrounded with all the other luxuries of the world, if deprived of good water, would be poor indeed—the hardy mountaineer of the Alleghanies, who quaffs the cool draught from the bosom of his native rocks, and with only corn-cake for his simple repast, would be wealthier than he.

The inhabitants of cities, villages, or districts supplied with plenty of good water, are superior in robustness, health,—in fact, in every respect, to those who live in places destitute of such blessings.

Owing to a few enquiries made of us, lately, about Artesian Wells, we presume that what we have to say upon the supply of water, will be of some interest. There are four methods of suppling cities, villages, and houses with water: one is by common wells, or artesian; the second by river water conveyed from a higher to a lower level; the third, by forcing river water, by steam or water power, from a lower to a higher level; the fourth, by collecting water over an extended surface, and conveying it by gravitation (from a higher to a lower level.) Another plan is, for domestic supply, by collecting rain water in cisterns. It is not possible to lay down any empiric rules for supplying all places in the best manner—that depends in a great measure on locality, but we wish to call attention to one plan, which has been triumphantly carried out in this city, and which is now becoming better understood, and coming into more general favor in the old world: we allude to the collecting of water into dams, and supplying it by gravitation.

Dr. Lee, of the Southern Cultivator, states, that on every acre of vacant land, near Charleston, S. C., there falls 825,000 gallons of water per year, according to the rain gauge. Here, then, is a source of water supply, from the heavens above, which those who cannot get it from the earth beneath, should avail themselves of. Other places have the same source of supply, but to take advantage of the same, it must be collected in such a situation as to run down hill, (supply those who want it by gravitation.) Another thing is, to collect it; for it will soak away through the earth, or disappear by evaporation, unless proper means are adopted to save it. The best way to collect and save it, is to have the gathering grounds composed of an upper stratum of sand or mould, and an under-stratum of clay; and to have deep dams and reservoirs to contain it. This plan is fast supplanting artesian wells in many places in the old world, for it has been found, that the water collected in this manner is purer and much better than that derived from deep wells. It has been found that clay, has a most extraordinary effect, in purifying water, and it is contended that the change is an important chemical one. If water contaminated with carbonate of lime be made to trickle through a layer of clay, or of sand and clay, the lime will be detained in the clay, and the water will come out almost pure. Water mixed with other salts can be purified in the same simple manner. And sand and clay, how abundant and common the materials; no place of any note or enterprise need therefore be without a supply of good water, unless it be those situations which are denied the blessings of copious showers.

Hints to Inventors.

There is no professional business, we believe, in which more skill and a thorough understanding of general mechanical matters is necessary, than in conducting applications for American patents.

We often hear inventors complaining of the injustice of the Patent Office in having rejected some alleged invention which the applicant had supposed to be new, and which, perhaps, in itself, did possess some novelty, but which the inventor had failed to properly set forth in his drawings and specification.

Inventors who apply for patents themselves, —who make their own drawings and specifications, should not overlook some important facts, which they are too liable to do. They should represent, specifically, in their drawings, such parts of their improvements as they deem of the most importance; and if they slight the execution of any part (which is not recommended) let it be done on such parts as are known to be old, and on which they expect to base no claims.

In preparing the specification, let the same rule be followed in describing the machine, or whatever apparatus it is, as is recommended in preparing the drawings. It is necessary that the nature of an invention be first described in the specification, and then explain its operation, referring to letters on the drawings; the same letters should, in all cases, refer to the same parts.

After you have fully described, in your specification, how your improvement or machine is to be used, you come to the most important and difficult part of the whole matter,—that is, the basing of your claims, which should be done with very great care. The claims to an invention are on what rests the whole or chief security, and therefore, they should not be made too broad, nor framed so ambiguously as not to cover all that is patentable in plain phraseology; it requires great mechanical skill, as well as a thorough knowledge of what exists of a similar kind, in order to correctly frame a specification and make the claims, and, we believe, it is owing to the fact, that so many furnish the Patent Office with imperfect drawings and specifications, that such a multitude of applications for patents are every year rejected.

It is an old saying, that "if a thing is worth doing at all, it is worth doing well," and we would recommend the same adage to inventors who wish to get their inventions secured by letters patent—if you have got an invention that is worth patenting at all, it is good policy to have the application properly prepared before submitting the case to the Patent Office.

Cheap Postage.

The Cheap Postage Bill is now before Congress, and we hope it will be passed and become a law, not in a few weeks, but days. By the debates in Congress, the proposed reduction of postage to 3 cents prepaid upon all letters to whatever distance, appears to meet with great opposition from some. It is said by one, that the reduction will injure the receipts of the post office, and that it will not be able to support itself, and it is argued by another, that in that case it will become a burden to the general government, whereas in all cases it should be self-supporting. These arguments betray a great amount of ignorance in Post Office experience. The reduction of our postage fees from 25 to 10 cents, and from 10 to 5 cents on letters, has increased our revenues, and the reduction in England from 24 cents to 2 cents has increased the revenues there also. It is very singular how some men can see how all useful government establishments should be self-supporting, but cannot see how many useless offices can or should be supported but by taxing the people.

We go for a universal reduction of postage to 3 cents or 2 cents, on all single letters, and we hope that the agitation for post office reform will not end here, but go on increasing until we have an Ocean Postage Reform also. The charges for carrying letters between America and Europe is shameful: no less than 24 cts. is charged for a single letter. If the price was reduced to ten cents, we believe that it would increase the Post Office revenues on both sides of the water.

Reform of the Patent Laws.

In Senate.—The Bill to amend the Patent Laws, which was introduced last Session, was greatly amended and re-committed to the Committee on Patents. After being left over, the Committee, on last Thursday, the 19th, reported the amended bill back, with several amendments, which produced the following discussion:—

Mr. Turney moved to amend the amendments of the committee.

Mr. Jefferson Davis was apposed to the trial of patent cases before the ordinary judical tribunals. He was in favor of establishing a special court to try patent cases, where the whole points involved were those of nice scientific distinctions. At the proper time he would offer a substitute for the bill.

Mr. Turney said that courts of law were as competent to try patent cases as they were to try murder cases—where death was occasioned by poison, or by steamboat explosions on account of defects in the machinery. In these cases chemists are called in to analyse the alleged poison, or men of science to give their opinion as to machinery. The courts, bar, and jury deside these cases on the opinions of such skilful men, and why not decide patent cases on the same evidence? If the argument, that courts of law were not competent to try patent cases, was sound, why would it not apply as well to the Senate? Why were they competent to pass patent laws? The immediate amendment before the Senate was, that each defendant in a suit for infringement of a patent shall be entitled to a *scire facias*, to be served on the patentee, to show the validity of his patent.

Mr. Jefferson Davis replied to show that the courts of law were not the best qualified to try patent cases on the same evidence, and cited the authorty of Judge Story and Judge Kane, of Philadelphia, to sustain him. He did not think Congress was the best constituted body to frame patent laws.

Mr. Turney replied.

Mr. Seward said he understood the amendment now pending was to effect that, when a patentee should sue any one for infringement of his patent, the defendant might sue out *scire facias*, to try the validity of the patent, and that the original suit should be stayed till the *scire facias* was tried. In either case, the validity of patents was involved, and would be tried; and he could see no justice in making the patentee the defendant, instead of plaintiff. Instead of the number of suits being decreased, they would be doubled: for every defendant, when sued, could have his writ of *scire facias*. If the Circuit Court of one district were to decide for or against the validity of a patent, that judgement would not be conclusive or final in other districts, as between other parties on the same patent right. He was opposed to the bill, and hoped another would be introduced.

Mr. Turney rejoined, and the amendment was agreed to.

Mr. Turney offered an amendment, making certified copies of specifications granted in foreign countries, receivable in evidence on trial of all cases for infringement.—Agreed to.

Mr. Jefferson Davis offered a substitute for the whole bill.—Laid on the table.

[In the above, Mr. Jefferson Davis struck deep and true to the mark, although we differ from him about the Special Court; yet so far as it respects the ability of Congress to frame good Patent Laws, we can have no better evidence of the truth of what he said than that of our present Code; it is a great *mass* of confusion. His allusion to the opinions of Judges, to show their unfitness to try patent cases, was good. It is a positive fact that some of our Judges set themselves up to be the sole arbiters of facts in patent infringement cases, and decide upon the merits of mechanical combinations, of which they know but very little. Some of our Judges have made very singular decisions. We do not like Mr. Turney's last amendment, but we have not room to say anything more about it this week.

If the writ of *scire facias* be as Mr. Seward has stated it to be, then we don't like it, but we apprehend that it is altogether a different affair from the light in which it is presented by him, and will give our views on it next week.

Explosion of Steam Boilers.

Scarcely a week, yea, scarcely a day passes over our heads without our hearing of some terble calamity, caused by the bursting of a steam boiler. Last week we heard of the death of one well known among us—Alfred Stillman, of the Novelty Works. He was killed by the explosion of the steamer Anglo Norman, the boiler of which exploded at New Orleans, as mentioned by us last week. It is a terrible thing to be recording so much destruction of life every few weeks, by such means as explosions. The causes of explosions are well known, there is no secrecy or phenomenon about them. They can be prevented, just as certainly as the sun shines, were the means resorted to for that purpose. How seldom do we hear of explosions in England; how seldom in our Eastern States, how common on the Mississippi. The high pressure non-condensing steamers on that river, are like so many floating powder magazines. The most skillful engineers do not seem to prevent explosions; in fact, the majority of engineers who have fallen victims to explosions, have been men of practical experience. Continual exposure to danger, not only leads men to be fearless of it, but reckless also. There is no real safety apart from a low pressure condensing engine; at least we think that 40 lbs. pressure, in large boilers, as high as the law should allow any boat to carry. We know that the shallowness of the Ohio, and the great amount of earthy matter in the waters of the Mississippi, may be urged as strong objections to practicability of condensing engines, with their heavy machinery, but surely something should be done beyond mere talk. We have given our opinion; who will provide a better one to remove the evil?

New Year's Presents.

It is customary with many employers to give their apprentices holiday presents: the custom is one of the good old times—we like it. Gifts, however, are often very injudiciously bestowed. We do not merely allude to that absurd custom of giving young people toys—but in bestowing any gifts which have no reference to the solid benefit of those to whom they are given. Books are common holiday presents—none are better, if the books are good; and it is in reference to literary presents that we would say a few words. Every year we have had orders from a number of employers for the Scientific American, to be given as presents, along with some gifts of drawing instruments, books, &c., to their apprentices;—they made their apprentices subscribers, thus encouraging a true taste for their business, and adopting the best possible way to feed the appetite, viz., sending home the Scientific American to be read every week for a year. A great deal of good, we have been informed, has been done in this way. We make these remarks, merely, to call attention to the fact—the reasonable fact, of such a present as making an apprentice or son a subscriber to the Scientific American doing a great amount of good at a trifling expense. Nothing but the soundest moral sentiments find their way into our columns, and it never shall be otherwise. To many, our paper may be dry, especially to those (and, alas, there are too many among our young men) whose tastes have been vitiated by the wild and exciting literature, in shilling novels, &c., but let any person read the Scientific American for one year, and if a taste for the solid and useful is not formed and encouraged, we will be willing to pay him back his money. We especially request the attention of parents and employers to this subject.

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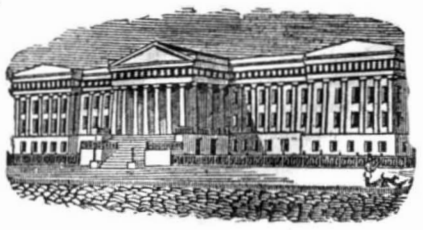

☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.

FOR THE WEEK ENDING DECEMBER 17, 1850.

To Orlando Child, of Granville, Ill., for improvements in Mills for sawing with circular saws.

I claim, first, the two springs carrying the two journal boxes, attached and arranged in the manner substantially as herein described, for the purpose of girding the saw, but at the same time allowing a sufficient degree of end play to the spindle, to admit of its accommodating itself to the lateral springing of the log.

Secondly, arranging the saw and its spindle on the swinging frame, which is adjustable, so as to bring the saw in any required position in a line forming part of a circle round the axis of the saw, and adjusting the said saw, either in a line with, or to the right or left of the saw, by means of the slot in the spring, through which the bolt passes, in the manner herein described, or in any manner substantially the same.

To Joseph Conant & Lucius Dimock, of Northampton, Mass., for improvements in machinery for doubling and twisting silk, &c.

We claim so constructing the catch bar that all the threads or silk, either before or after being twisted, may be secured by the catches, simultaneously, by simply bringing the bar with its catches, down upon the threads, and whilst in that position causing all the helical springs to act on the catches at the same time, by suddenly disengaging the slide lock plate from the end of the bar, the mortises on the said plate being so formed as to allow each catch to be opened separately, without the aid of the lock plate; or all to be opened simultaneously by moving said lock plate longitudinally, in the manner herein fully set forth.

To Florimond Datichiey, of New York, N. Y., for improvement in apparatus for emptying Privies.

I claim the gasometer connected with the receiver, as described, for the purpose of keeping the gases separated from the fecal matter, and preventing their mixture, as set forth, and serving also as a reservoir for the compressed gases, from which the power for expelling the contents of the receiver is obtained.

To Edward & Charles Everett, Jr., of Washington, D. C., for improvement in Carriages.

The joint on which the fore carriage turns, when placed in rear of the fore axle, in combination with the segment on which the end of the perch rests, substantially as described, for the purpose of allowing the carriage to be turned in a small space, without having the fore wheels to run under the body or interfering with the hind wheels.

To Joseph F. Flanders, of Newburyport, Mass., for improvements in machinery for cutting and bending sheet metal.

I claim the improvement in the bending mechanism, the same consisting in the combination of the conic or approximately conic roller or projection, with the cylindric part or roller, and with the circular disc or roller, in the manner as above described, and so as when pressed against the tin to gradually bend it over and down upon the disc or holder, so as to enable the roller to pass over and upon the tin, and complete the bending of it down upon the periphery of the holder.

I also claim the improvement in the construction of the gauge, whereby it is adapted to operate when the tin plate is rotated in a vertical plane, such improvement consisting in arranging its supporting journal at an inclination to the horizontal plane, and applying a weighted arm, or its mechanical equivalent, to the gauge, so that the gravitating power of the weighted arm shall restore the gauge to its original and proper position under the holders, after it has been freed from the pressure of the surplus tin, or part removed by the cutters.

To Joseph W. Fawkes, of Bart Township, Pa., for improvement in Seed Planters.

I claim the peculiar construction of the adjustable shovels to clear the mouth of any obstruction.

I also claim the mode and manner of sowing the grain through slots, as herein described.

To S. H. Gilman, of Cincinnati, Ohio, for improved Expansion Gear for Horizontal Engines.

I claim withdrawing the sliding tongue of the supply valves of steam cylinders, so as to trip the valves at any desired point, by an adjustable prong, which is made to slide upon the arm holding the usual fixed prong, by the action of a tappet on the rock shaft, when this adjustment is effected by means of the shackle and link within the steam-chest, and the whole being arranged and operating substantially as herein described.

To Lucien E. Hicks, of Berlin, Conn., (assignor to Wm. A. Churchill & James Stanberg,) for machine for making Eyelets.

I claim the sliding bolster, constructed with its two dies and aperture, in combination with the feeding tube, punches and clearers, the whole being constructed, arranged and operated substantially in the manner and for the purpose herein set forth.

To Joel Houghton, of Ogden, N. Y., for improvements in Grain Cradle Fingers.

I claim the insertion of a metallic plate into the edge of a cradle finger by means of rivets or other fastenings so as to keep the plate and finger permanently attached together and in their place, and thereby effectually prevent the finger from straightening or springing back when used in damp grain, prevent the grain from wearing it away, and prevent the grain from sliding endwise off the cradle, before the cradle gets it round into its own swath.

To Wm. Lazelle, of Hartford, Conn., for improved Sash Fastener.

I claim the combination of the cam with the plate, when these are combined with the shaft and lip, for turning back the cam when necessary, and locking it to fasten down the lower sash, when the whole is constructed, arranged, and combined, substantially as herein described.

To R. F. Loper & J. W. Nystrom, of Philadelphia, Pa., for improved arrangement of Steam Engines.

We claim the arrangement herein set forth of the beams, connecting rods, and crank, of the two cylinders of a double cylinder engine.

To Edward Rees, of Cincinnati, Ohio, for improved composition for making cores for casting.

I claim therein the use of white of egg as a component in the preparation of loam, for cores and other similar things intended for contact with molten metal, in the manner herein described, limiting myself to that use of white of egg, but not limiting myself to the precise proportions mentioned, while the same result is obtained by the said addition to the ingredients ordinarily used in loam for cores.

To John Rogers, of Jackson, Mich., for improvement in Mills for Grinding.

I claim hanging the bed stone, (when the shaft or spindle to which the runner is attached passes through the same) by means of the before-described universal joint, in combination with the lever and screw, as aforesaid.

To David E. Rohr, of Charlestown, Va., for improvement in Oscillating Seeding Cylinders.

I claim oscillating the seeding cylinder upon its axis, for the supply and discharge of the seed, as described, by means of the combination of the lever, the spring, and pins, with the propelling wheel, as described.

To Charles Scales, of Bath, Me. for improved instrument for laying down curves of ships' timbers.

I claim the adjustable mould constructed substantially as herein set forth so that it can be set to the outside and inside curves of the timbers of a vessel and can then be used to mark them upon the wood of which they are to be formed.

To W. C. Stone, of Boston, Mass., for improvement in artificial legs.

I claim the application of the whole action from the heel up to the knee joint in the artificial leg, which action prevents the knee joint from turning, slipping, or revolving out in the act of stepping, as herein described, using for that purpose the aforesaid springs, rod, lever, and pins, or any other, substantially the same, and which will produce the intended effect.

To Robert Thompson, of Lowell, Mass., for improvement in Lamps for lighting gas burners.

I claim the protector, as made and applied to the lamp, and so as not only to be capable of exploding or inflaming the gas brought into contact with it, substantially as specified, but of protecting fibrous matters which may come in contact with the protector, from direct exposure to the flame.

To Eleazer Bless, of Minerva, Ky., for improvement in Fanning Mills.

I claim the supporting and regulating the motion of the sieves by means of the rollers or their equivalents, and the spiral springs, so arranged as to press the shoe, or sieve frame, down upon the rollers, steadying its motion, and to a certain extent preventing any jar at the end of each vibration, substantially in the manner and for the purpose as herein set forth.

For the Scientific American.

Patent Office Reform.

I was much interested in the perusal of the strictures of "Junius Redivivus," in the Scientific American, on the Commissioner's Report, and only regret one thing, which is, that there was too little of it, and rather scattering.

The Examiner mainly alluded to in those articles, has, for several years, excited the attention and fears of inventors,—I like to be plainly understood—I refer to Examiner Fitzgerald. This man has been in the office a long time, and he appears to have failed signally in obtaining the countenance of inventors—the patrons of the Office. However well informed he may be in many parts of the routine of his business, he evidently does not possess that first of all important qualifications,—a knowledge of his proper relation to us, as inventors. When such expressions as the following issue from a man, we are sometimes led to inquire into the matter, and see whose province it is to be thus peremptory :—"The number of applications *passed* at *my* desk, for *patents*," &c., and "*rejections* at *my* desk," also, "applications *finally rejected* at *my* desk," "*ordered* (*?*) to issue," &c. Who is it that speaks thus authoritatively; the Commissioner? No: why, it is only the "*examining clerk*," Mr. Fitzgerald. I know of no authority to issue patents besides the Commissioner. Let me tell Mr. F. one fact that he forgot many years ago,—the Commissioner has the right to *reject* what he, Mr. F. "*orders* to a patent." The province of an examiner is precisely similar to that of a clerk in a mercantile house, to whom the head of the establishment would refer a bill for examination when presented at the counter for payment; if the clerk "ordered" the bill paid, after *his* examination of it, I think the merchant would be apt to inquire who this would-be co-equal was? Mr. F. evidently possesses no feeling in common with inventors, hence he never can be a man acceptable to them. Dr. Page, formerly, had a bad name for want of liberality and sympathy, but a change has evidently been wrought in him, and why? Simply because he has become an inventor himself, and he now knows what it is to be hung between hope and fear (the inventor's greatest fear is of the Patent Office.) We welcome him into our ranks,—he, like Paul, has been a great sinner,—but, like Paul, we hope he will become distinguished for his conversion to right. I have been told, and I have reason to believe it to be true, that Examiner Fitzgerald has *rejected* cases in which the inventors thought they saw unfairness; appeals were taken, and Ex. Fitzgerald appeared as a pettifogger in the presence of Judge Cranch against the inventors. Of such a man I have no hope; and I hope and believe that Mr. Ewbank was ignorant of the fact. Give me a vacillating, simple headed enthusiast, in fact, anybody, to reason with, in preference to a dogmatic examiner. No man is degraded by changing his opinion from wrong to right; indeed I love a man for the nobleness displayed in such an act—"a wise man changes his mind often," and "a man is bound to change his mind whenever he finds just cause for it"—are sayings of wisdom, ill understood by Examiner F.; hence my reason for saying I have no hope of him.

At this time I know persons that have inventions which are valuable, and are needed for daily use, yet they will not trust their cases to the office, from the fact that their inventions are in one of Fitzgerald's classes.

As an inventor, I do not pretend to disguise the fact that I want to see Mr. Fitzgerald dismissed from the office, and a *practical* man—a man of known feeling and community of interest with us, appointed in his place. I can feel for Mr. Ewbank; I know his duties are severe and harrassing; still I know that a large portion of the care and unpleasantness experienced by him in the office, and the censures that have been applied to him outside, are caused by the action of such men in the office as I have alluded to.

I have something to say in regard to the proper duties and relations of Examiners, and also the province of the Commissioners, which I may communicate in future papers.

DACLEDE.

Poisonous Effects from New Earthenware.

A somewhat singular though not unaccountable occurrence took place in the family of a gentleman in one of our neighboring towns, a short time since. It appears there was a large number of the gentleman's family and connections to partake of a Thanksgiving dinner, numbering in all twenty-three persons. The usual variety served on such occasions covered the banquet board, and the party partook of it with the proper relish. Twenty of the party remained over night and took breakfast with their host the ensuing morning. A large chicken pie, which had not been touched the day before, was served out to them at this time. In a few hours after, seventeen of them were violently attacked with severe griping pains in the bowels, accompanied with profuse diarrhœa. It appeared, from investigation, that only those who ate of the pie were the ones who suffered. The lady of the house having made it herself, and partaken freely of it, suffering alike with the rest, of course removed all suspicion of intentional poisoning. The query now is, what was there in this pie, or about it, that should produce these effects? The pie was baked in a yellow earthen dish, that had never been used before; and the conclusion necessarily is, that its contents became impregnated with portions of the enamel with which it was lined, and hence the consequences. Now, the enamel used by potters varies in composition, according to the purposes for which the ware is intended. They all, we believe, contain more or less lead, cobalt, &c. Often the biscuit, as it is called, is made of clay which contains poisonous matter in various proportions, and if, after the baking, the vessels are imperfectly glazed or protected, bad consequences may arise from using them. All such ware, to be used in cooking when new, should first be proved, and this is best done by having it greased over with lard or tallow, and then subjected to the heat of an oven. This will generally be found a sure protection. This one instance should serve as a warning to families, and is not without interest to the physician. Had the occurrence taken place during the prevalence of the cholera, the sickness might have been taken for it, and with very good reason, its symptoms and character simulating that disease. We are pleased to state that the parties entirely recovered, the majority of them only suffering five or six hours.

(The above is from the Boston Medical and Surgical Journal. The poison of the earthenware spoken of, was no doubt in the glaze, the common coarse kind being mostly composed of lead. The advice about trying the ware, before it is used for cooking, is prudent, and should, in every case, be complied with.

Some apples contain 78 per cent. of water,—this is the reason why some give out nearly as much cider as the apples, bulk for bulk.—Apples contain no starch, but a great deal of nitrogen, therefore they are good for producing muscle.

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TO CORRESPONDENTS.

"A. M. O., of Wisconsin."—Such bits as you want could be had on application to T Wood, corner of Chatham and Duane sts. The price can be had on application to him. Your method of operating them may answer a good purpose. It is not new.

"A. E. F., of Conn."—To speak plainly and to the point, we must candidly state that the device you offer as an improvement on the steam engine—is of no value whatever. Experiments made years ago prove the correctness of our views. Go no further, for disappointment will surely follow. You have been misinformed in regard to Patent Laws. Patents are granted for 14 years only, not 28. —Inventors are required to make oath to their inventions when applieation is made.

"W. H. S., of N. Y."—You are correct, for proof see page 230, Vol. 5, Scientific American. Dr. Fitch's claim is there published.

"P. O., of Conn."—It is all nonsense, and we advise you to pay no attention to such statements. You can obtain a patent unless your invention has been in use for more than two years.

"H. J. B. C., of N. C."—Agricultural plaster is worth $1,50 per barrel, each containing about 300 lbs., we should think. Patagonia Guano is worth here $2,50 per hundred, a good article.

"T. K., of Pa."—Not having such information as you desired, we addressed Messrs. Wheeler, Melic & Co., Albany, requesting them to furnish it. $7 received.

"G. H. R., of Ill."—We have reconsidered your case, and we are of the opinion that in Haines & Esterley's patents, the principle of elevating is essentially the same as yours. If you obtained a patent at all, the claim would be very limited and we advise you not to apply. The difference between yours and the one above mentioned is merely mechanical and could not be regarded as an invention. We feel assured that you would have difficulty in getting the patent through. $6 received and credited to each subscriber.

"L. B. G., of Pa."—You are at liberty to consult us in regard to the novelty of your improvements. We will give you an opinion without charge. $1 received.

"A. J. R., of N. Y."—We do not think it possible for you to succeed. We can see neither novelty nor utility in the plan you propose for preventing cars from running off the track. It would not inspire any confidence on the part of those who would be likely to take interest in such inventions.

"E. F. P., of Ohio."—Certainly if the principle is new you can obtain a patent. You had better consult us before going any further.

"S. M., of O."—The cost of preparing the papers for an application for a patent, vary from $15 to $50 according to the amount of labor necessary to make the drawings.

"Publisher of the 'Chronicle,' of N. Y."—Please accept our thanks for your manifested kindness. We have entered Mr. E.'s name as you directed and forwarded the back numbers to the "Chronicle."

"T. R., of N. Y."—Your requests have been attended to. Shall await your arrival here, or further instructions by letter.

"N. McQ., of Ala."—There is nothing patentable in your plan for raising water. It has been done before.

"W. T. M., of S. C."—We will attend to Mr. I.'s business upon receipt of the model.

"S. K., of Ind."—We are unable to comprehend the nature of the improvements you suggest. Would it not be better to furnish us with a sketch? We can certainly give you better advice after having examined it, than from the description given. We are of the opinion that the plan is new.

"J. F. S., of R. I."—An iron stile will answer the purpose, but we do not know the price. The size depends all on the quantity to be made; one size will work as well as another. We only gave the process, but with respect to the practical of the profit and loss, we could not tell; the process is quite new.

"D. L., of Ill."—We presume the statements are correct. Such a patent was granted July 1846, as you infer.

Money received on account of Patent Office business, since Dec. 17, 1850:—

J. W., of N. Y., $30; J. S. S., of N. Y., $30; H. D. G., of N. Y., $20; U. P., of Conn., $20; A. T., of N. Y., $30; G. F. D., of Vt., $60; N. N. G., of Me., $30; H. D. P., of Mass., $25; C. F. B., of Ga., $35; and G. B. W., of La., $60.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and the year the patent was granted (adding the month of the year when convenient), and enclosing one dollar as fee for copying.

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The present volume of the Scientific American will be the most valuable encyclopedia, or year book of inventions we have yet published, and every person ordering it should not fail to receive the back numbers, to render his volume complete.

Those desiring Volume 5 of the Scientific American, are informed that we are able to furnish a few complete volumes, (bound,) at $2,75 each. Also, we can send by mail sets complete, (unbound,) for $2. We would also say, that whenever our friends order numbers they have missed—we shall always send them if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for cannot be supplied.

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128 FULTON ST.

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STRAW CUTTER FOR SALE.—We have on hand one of Macomber's Improved Straw Cutters, patented Nov. 5, 1850, illustrated in No. 50, Vol. 5, Sci. Am. Price $10. Address MUNN & CO.

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MANUFACTURERS' FINDINGS and Leather Binding.—The subscriber is prepared to offer a large assortment of manufacturers' Findings for Cotton and Woollen Factories, viz., bobbins, reeds, harness, shuttles, temples, rockers, harness twines varnish, roller cloth, card clothing, card stripper and clamps, calf and sheep roller, leather, lace, and picker string, potato & wheat starch, oils, &c. Leather Banding, of all widths, made in a superior manner from best oak tanned leather, rivetted and cemented. 15 3m P. A. LEONARD, 116 Pearl st.

PATENT RIGHTS FOT SALE.—The inventor of the patent "Cut-Off," illustrated in No. 14, Scientific American, desires to effect sales of rights—town, county and State rights will be sold on reasonable terms. Address G. B. MILNER, Houston, Texas, post-paid. 15 4*

FOR SALE--A good second-hand Steam Engine, 8 inch cylinder, 32 inch stroke, with one boiler, 3 feet diameter, 22 feet long, with one 16 inch flue, refitted in good order. CHUTE, BROTHERS,
13 4* Schenectady, N. Y.

HUTCHINSON'S PATENT STAVE MACHINE.—C. B. HUTCHINSON & CO., Waterloo, N. Y., offer for sale town, county and State rights, or single machines, with right to use the same. This machine was illustrated in No. 2, Vol. 5, Sci. Am.; it will cut from 1,500 to 2,000 perfect staves per hour. We manufacture machines of different sizes, for keg, firkin, barrel and hogshead staves; also, heading shingle, and listing and jointing machines. These machines may be seen in operation at St. Louis, Mo.; Chicago, Ill.; Savannah, Ga.; Madison, Ia.; Ithaca, N. Y.; Waterloo, N. Y.; Bytown, C. W. Letters directed to us, post-paid, will receive prompt attention. 15 3m*

LEONARD'S MACHINERY DEPOT, 116 Pearl st., N. Y.—The subscriber has removed from 66 Beaver st. to the large store, 116 Pearl st., and is now prepared to offer a great variety of Machinists' Tools, viz., engines and hand lathes, iron planing and vertical drilling machines, cutting engines, slotting machines, universal chucks, &c. Carpenters' Tools—mortising and tennoning machines, wood planing machines, &c. Cotton Gins, hand and power, Carver Washburn & Co.'s Patent. Steam Engines and Boilers, from 5 to 100 horse power. Mill Gearing, wrought iron shafting and castings made to order. Particular attention paid to the packing, shipping, and insurance, when requested, of all machinery ordered through me. P. A. LEONARD.
15 2m

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WATER-PROOF BLACKING—G. R. Townsley having received Diplomas from the various Fairs, where his celebrated Water-proof Blacking has been exhibited, takes this method of informing the public that he continues the manufacture of it at Springfield, Mass. Each box of blacking contains a sufficient quantity to last one person for six months, and it is warranted to render boots impervious to water, gives a good polish, and is a preservative to leather. Address G. R. TOWNSLEY, Springfield, Mass., or H. E. WARREN & CO., Agents, 44 Courtland street. A sample may be seen at this Office. 13 4*

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THOS. PROSSER & SON, Patentees,
8tf 28 Platt st., New York.

AMERICAN CAST-STEEL.—The Adirondac Steel Company have re-built their works that were recently destroyed by fire, and are now manufacturing an improved article entirely from home material, as low in price, and warranted equal to any imported steel in market. All sizes Steel, from 1-4 inch to 4 inches square, and from 1-2 inch to 12 inches wide, can be supplied. For sale at the Company's Warehouse, by QUINCY & DELAPIERRE,
14 4* 81 John st., N. Y.

FOR SALE—One second-hand steam engine, 10 horse power, in good condition, has run only 4 years, with a 3 feet boiler, two flues, and all appendages complete. It can be seen running for a few days, after which it will be taken down and a 25 horse engine put in its place; price $800, cash; it will be shipped to the first order enclosing a draft. Address, post-paid, 4 Howard st, New Haven, Conn.
14 2* AARON KILBORN.

BARNUM'S PATENT PLANING MACHINE.—These machines, while they possess equal facilities with any other, for planing coarse lumber for flooring, &c., removes all the objections urged against machine planing, for ship and steamboat building, or fine ceiling, &c., by finishing the material with the grain, fully equal to hand planing, leaving no indentations on the surface of the board (as in all machines using pressure roll-ers in planing, by the chips and knots collected passing between the planed surface and weighted feed rollers, thereby destroying fine work, designed for painting, &c.) as there is no appliance whatever on the planed surface Contracts may now be made for their construction or use, or for the formation of a joint stock company or companies, in any part of the U. S., to successfully prosecute the business by applying to DANIEL BARNUM, Snowden's Wharf, Philadelphia, where the machines may be seen in constant operation. 14 6*

DICK'S GREAT POWER PRESS.—The public are hereby informed that the Matteawan Company, having entered into an arrangement with the Patentee for the manufacture of the so-called Dick's Anti-Friction Press, are now prepared to execute orders for the following, to which this power is applicable, viz.—Boiler Punches, Boiler Plate Shears, Saw Gummers, Rail Straighteners, Copying and Sealing Presses, Book and Paper Presses, Embossing Presses, Presses for Baling Cotton and Woollen Goods—Cotton, Hay, Tobacco, and Cider Presses; Flaxseed, Lard, and Sperm Oil Presses; Stump Extractors, &c. &c. The convenience and celerity with which this machine can be operated, is such that on an average, not more than one-fourth the time will be required to do the same work with the same force required by any other machine.
WILLIAM B. LEONARD, Agent,
13tf No. 66 Beaver st., New York City.

COTTON MACHINERY FOR SALE—Viz. 4 filling frames, 144 spindles each; dead spindle, nearly new; 1 three head drawing frame, with extra rolls; 1 Mason's speeder, 16 strand; 1 lapper; 1 cone willower; 1 band machine; 1 bundling press; 1 warper—on very reasonable terms, by ELI WHITNEY.
New Haven, Nov., 1850. 9 6*

GURLEY'S IMPROVED SAW GUMMERS—for gumming out and sharpening the teeth of saws can be had on application to G. A. KIRTLAND, 205 South st., N. Y. 10 6

SCRANTON & PARSHLEY,—New Haven, Conn., will have finished by the 15th of December, 12 Engine Lathes of 8, 10 and 12 feet beds, and weigh 1500, 1650, and 1800 lbs; price $200, $220 and $240. These Lathes are from a new set of patterns, and are greatly improved from their former small size lathes; they swing 21 inches, and have back and screw gearing, centre rest, follow rest, drill, chuck and overhead reversing pulleys, all hung in a cast iron frame, ready for use. On and after the first of Dec., by addressing as above (post paid) cuts can be had of these, with index card, showing the different pitch threads that these lathes will cut.

Two of the power planers heretofore advertised in this paper, are now ready to ship to the first order; they weigh from 4500 to 4600 lbs., when finished. 9tf

A CARD.—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools, and manufacturer of Mathematical Instruments, 154 Fulton street. 1 6m*

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
9tf Painters and Chemists

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines, Dick's Presses, Punches, and Shears; Morticing and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 10tf

BAILEY'S SELF-CENTERING LATHE, for turning Broom and other handles, swelled work, chair spindles, &c.; warranted to turn out twice the work of any other lathe known—doing in a first rate manner 2000 broom handles and 4000 chair spindles per day, and other work in proportion. These lathes are simple in construction, not liable to get out of repair, and will do enough more than other lathes, in three months' use, to pay their cost. One of them may be seen at the office of Munn & Co., New York. Price of Lathe for turning broom and hoe handles, rake stales, scythe snaths, windsor and cottage chair legs and pillars, $100, with one set of tools; $125 with two sets. Lathe for turning chair spindles, whip stocks, gun rods, &c., complete, $75. Orders, post-paid, may be forwarded to L. A. SPALDING, Lockport, N. Y. 93m

IMPORATANT NOTICE TO CONFECTIONARY MAKERS—Whereas, a patent was granted to the undersigned, Oct. 8th, 1850, for an improvement in the manufacture of Comfits, and from certain knowledge which he has received, he believes that parties are using it without his consent. Vigorous measures are now being taken to ascertain who the unprincipled parties are, in order that they may be dealt with according to law. This notice is to warn all not to infringe the patent, as it is not the intention of the patentee to dispose of rights. Parties using it will have no authority. W. H. HOLT, Patentee.
Hartford, Conn., Nov. 25, 1850. 11 8*

THE SUBSCRIBER is now finishing four 14 horse engines, with boiler and apparatus all complete—price $1200 each. Several 6 horse engines extremely low; also, several of smaller capacity, complete; also, several power planers, now finishing.—Galvanized chain for water elevators, and all fixtures—price low—wholesale and retail. Orders, post-paid, will receive prompt attention. AARON KILBORN.
No. 4 Howard st., New Haven, Conn. 11 6*

MACHINES FOR CUTTING SHINGLES. The extraordinary success of Wood's Patent Shingle Machine, under every circumstance where it has been tried, fully establishes its superiority over any other machine for the purpose ever yet offered to the public. It received the first premium at the last Fair of the American Institute—where its operation was witnessed by hundreds. A few State rights remain unsold. Patented January 8th, 1850,—13 years more to run. Terms made easy to the purchaser. Address, (post-paid) JAMES D. JOHNSON, Redding Ridge, Conn., or Wm. WOOD, Westport, Conn.. All letters will be promptly attended to. 10tf

A MANUFACTURER WANTED.—I wish to employ for a term of years, a man of industrious habits, good moral character, not more than 40 years of age, qualified to manage and superintend hands in a cotton and spinning factory, and who is a first rate carder and spinner. The location is a healthy one, machinery propelled by water, 700 to 1000 spindles; salary liberal. Nothing short of the most satisfactory recommendations will be considered. Address the subscriber, immediately, at McMinnville, Tenn. WILLIAM BLACK.
Central Factory, Tenn., Nov. 25, 1850. 12 4

FOREIGN PATENTS.—PATENTS procured in GREAT BRITAIN and her colonies, also France Belgium, Holland, &c., &c., with certainty and dispatch through special and responsible agents appointed, by, and connected only with this establishment.—Pamphlets containing a synopsis of Foreign Patent laws, and information can be had gratis on application
JOSEPH P. PIRSSON, Civil Engineer,
7tf Office 5 Wall street, New York.

RAILROAD CAR MANUFACTORY.—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of Railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty and good taste, as well as strength and durability, we are determined our work shall be unsurpassed. JOHN R. TRACY,
5 tf. THOMAS J. FALES.

FOWLERS & WELLS, Phrenologists and Publishers, Clinton Hall, 131 Nassau st., New York—Office of the Water Cure and Phrenological Journals. Professional examinations day and evening. 3 6m

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Scientific Museum.

Scientific Memoranda.

WATER AND DEW.—The transformations of water are truly wonderful. A solid body falls from the sky in the shape of a hailstone, which, while it is held for examination in the hand, changes into a transparent fluid, and then again changes into a vapor, and vanishes in the air. If the weather is cold, it soon disappears and gently falls in liquid drops of dew, and, instead of a hailstone, they appear as soft and beauteous pearls.

WATER AND LIME.—Place some water under a bell glass, with thrice its weight of lime, it will gradually disappear, and instead of three parts of lime we have four, and yet the earth appears dry. Of a plaster of Paris statue, weighing five pounds, one pound of it is solidified water.

WATER IN THE HUMAN BODY.—A man weighing 140 pounds, if squeezed under a hydraulic press, 105 pounds of water would run out of him, and only 35 pounds of solid dry matter would remain. A beef-steak pressed between blotting paper, under a press gives out four-fifths of its weight in water. Water, therefore is the first necessary of life, and this accounts for the healthiness of those districts where good water is supplied to the inhabitants.

The water of the ocean absorbs two per cent. of air.

Fallacies of the Faculty.

An esteemed neighbor, who for eighteen years has been subject to frequent and severe attacks of rheumatism, some of which have laid him up for two months at a time, desires, through our columns, to pay a tribute of justice to the benefits received by him from the Crono-Thermal treatment of Dr. Turner, of New York. The recent attacks have uniformly been broken up in three or four days, while the last one was conquered in twenty-four hours. Not a drop of blood was taken, either by lancet or leech; consequently the vigor of the system was rapidly restored.—[Prov. (R. I.) Jour.

[The above paragraph brought to our recollection the work of Dr. Turner, of this city, which has been in our possession for some time. It is an American edition of Dr. Dickson's work, edited by Dr. Turner, and is a masterly work. It explains the principles of the Chrono-Thermal System of Medicine, with the "Fallacies of the Faculty,,' in a series of Lectures by Dr. S. Dickson, of London.

We would like, were it possible, to present the leading views of this work, but we have not room for that; we can only recommend the work, stating, briefly, that Dr. Dickson's conclusions in relation to health and disease, are, 1st. "The phenomena of perfect health consist in a regular series of alternate motions, each embracing a special period of time. 2nd. Disease, under all its modifications, is, in the first place, an exaggeration of the amount of the same motions, and, being alternative with comparative health, strictly resolves into fever," &c.

The remedies for the treatment of disease are termed "Chrono-Thermal;" it rejects the leech, the lance, and cupping, and abominates blood-letting—and so do we.

The work is now in its thirteenth edition, and this speaks well for it.

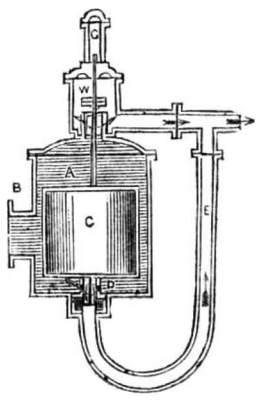
The Preserving Influence of Chloroform.

M. Augendu, Assayer in the mint at Constantinople, has written a letter to the Academy of Sciences (Paris) pointing out a new property of chloroform. He states that if a piece of beef be placed in a vial, with a few drops of chloroform, it remains perfectly sweet and untainted. A 1-200th part of chloroform is sufficient to preserve animal substances for an indefinite length of time. He has also succeeded in preserving vegetables by the same means, for a long time. His opinion about its action is, that it is purely physical—the chloroform acts upon the fibres, contracts them, expels the juices, and prevents putrefaction. The most powerful antiseptics which we have, such as the chlorides of sodium, zinc, mercury, and the chloride of formyle, are all chlorine compounds, and they act on organized substances without yielding up any of their constituent principles to these substances.

Hydrostatics.

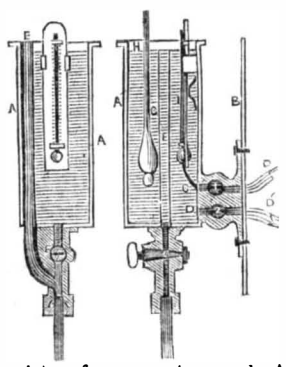
(Continued from page 112.)

FIG. 13.



Some time ago we noticed an invention of Mr. Sewall, Engineer, U. S. N., whose pamplet we have now before us, describing his Salinometer. In the Franklin Journal for last July, a very excellent description of the uses of the Marine Salinometer is given, with engravings of Mather's and Sewall's instruments, which accompany this. The Marine Salinometer is an instrument for testing the density of the salt water in the boiler. It is well known that sea water contains 1-33rd of its own weight of salt, and as the steam raised from it in the boiler leaves the water more dense, it would soon become so strong as to form into crystals, and become almost solid, or form in scales on the boiler. This actually happened to the first steamboat that went from Glasgow to London; the deposit became quite thick, and the boiler had to be emptied entirely. But this would not do now-a-days. To prevent crystalization, the brine is blown out by an aperture and pipe, at the bottom of the boiler, (at regular intervals,) or otherwise a brine pump is used for that purpose. It is here where the Salinometer shows its advantages. It is a waste of heat to run off unsaturated brine, and the instrument is to tell when it has reached the proper point of saturation, so that the boiler shall be blown out then—not before nor after. Figure 13 is what is called "Mather's Salinometer and Blow-off."

FIG. 14.



It consists of a separate vessel, A, bolted on and opening into the boiler at B, below the water level, enclosing a hollow brass float, B, having a centre vertical spindle; upon this spindle, above and below the float, are two pistons sliding in cylinders, D D, connecting with the blow-off pipe, E E, and so fixed that when, by the increasing density of the water, the float rises, they reveal openings in the sides of the cylinders through which the water may escape. The pistons being of equal diameter, there is no tendency to open or close them. Means of adjustment are provided, in the upper part of the spindle, which, continuing all through the piston, rises high enough to be seen in a close glass tube, G, surmounting the chest, and thereby serves as an index to show the action of the instruments.

Fig. 14 is the invention of Mr. W. Sewall, Jr., and is the subject of a patent. It employs a hydrometer like the instrument represented in figs. 11 and 12, last number of the Scientific American. It consists of a cylindrical brass chamber, A, permanently attached in a vertical position, having on its side near the bottom two cocks, 1, 2, with pipes, C D, leading into the boiler, the one directly over the the furnace crown, the other near the bottom of one of the "legs." Either may be used as desired, but the former (C) is that generally employed. An outline pipe leads from the bottom of the chamber, furnished with cock F, below which enters another pipe E, whose mouth or upper end is about half an inch below the top of the chamber, this forms an overflow. A Fahrenheit thermometer, I, attached securely to the inner side of the chamber, and a hydrometer, G, graduated for saline solutions containing from 1-33 to 12-33, (the latter being the point of saturation,) sliding freely in a guide, H, for steadiness, complete the apparatus.

When in use, the cock, C, to the boiler is always partly open, while the overflow E, carries off the water as rapidly as it enters; but when it is desired to test the density, this cock is shut until the water has cooled to 200° Fahr., when the hydrometer is read off and the current re-established, thus preventing saline deposits in the pipes. This instrument has been thoroughly tried at sea, and has, we believe given full satisfaction.

One way which had been commonly practiced, before Salinometers were made so as to be attached to the boiler, was to draw the brine from the lower cock at stated intervals, into a tin tube, like that in the last number, and test it by a common hydrometer. This is a correct but more troublesome plan—a tube full of water from the sea and one from the boiler could easily, by the old plan, be tested at the same time.

Fire-Proof Ropes.

Prof. Johnson, of St. Louis, has discovered a method, it is said, by which ropes can be rendered entirely indestructible by fire. The process is stated to be very simple, and so cheap that the commonest fabric can be prepared with it, and its use be made universal. Wood for the lining of safes, prepared by this process, possesses a perfect resistance to a fire capable of melting the cast iron and burning out the wrought metal enclosing it.

[The above we have seen in a number of exchanges. We would state that Mr. Johnson, when in this city a few months ago, on his way to Europe, was seized suddenly with disease and died. The patent was secured to his widow after his death.

New Water-proof Discovery.

A Mr. Martin, of Cockermouth, England, has discovered one of the most wonderful processes for rendering all kinds of fabrics water-proof.. He has patterns of every fabric, from the finest open lace to the coarsest fustian of the mechanic; each appear to be as if cut from the web; not the slightest difference is observable betwixt those that had undergone his process of water-proofing and those that had not; even the most delicate silks are not in the least altered, either in color, feel, or smell, except they are perfectly impervious to moisture, the water rolling over them as from the duck's back or the cabbage leaf.

The most extraordinary as well as the most valuable characteristic of the discovery is, that though cloth of any description, after having been water-proofed by Mr. Martin's process, will resist boiling water, which makes not, in fact, the slightest impression upon it, it is not in the slightest degree less impervious to vapor—the steam, and even the breath, passing as freely through it as before it was submitted to the water-proofing process.

A Tall One.

The Boston Traveller of Saturday notices the arrival from St. John of a young man seven feet four and a half inches high, fifty-six inches circumference round the breast, and weighing 256 pounds. He is a Scotchman, aged nineteen, but for some time past a resident of Nova Scotia.

A Powerful Voice.

An English paper in 1824, describing the effects of Catalini's voice at a musical festival says :—"Such was the torrent of sound she emitted at one moment, that the glass globules pendent from the central chandelier were powerfully agitated and struck against each other."

LITERARY NOTICES.

HARPER'S NEW MONTHLY MAGAZINE.—We should have noticed before the receipt of the December number of this justly popular work. It contains a sterling variety of the best literature of the day, both foreign and home, besides a synopsis of the current events of the month. This latter feature alone, is most valuable, and enhances the merits of the magazine vastly, in the estimation of all who take an interest in the collections of the most prominent events occurring throughout the world. Like all the publications of this celebrated house, the mechanical execution of the work is unexceptionable. Price per number (145 pages) 25 cents.

THE AMERICAN PHRENOLOGICAL JOURNAL appears, for January, in an improved form, printed upon fine white calendered paper. We have scarcely ever seen a more beautiful specimen of the printing art. This number contains a finely executed engraving of Collin's Steamship Atlantic, accompanied by an interesting paper upon Steam Navigation, by R. Macfarlane, Esq., of the Scientific American. We take this occasion to state, that, in this department, our highly gifted associate has furnished much valuable information to the world. His recently published "History of Propellers and Steam Navigation," has been highly complimented by the press, and justly so, as we regard it. The Journal, for this year, must more than excel any other volume ever issued. Terms $1. Fowlers & Wells.

"The Manhattaner in New Orleans, or Phases of Crescent City Life, by A. Oakley Hall." J. S. Redfield, publisher, Clinton Hall, N. Y. This work presents, in a very attractive manner, a faithful daguerretype of New Orleans, in all its characteristics, and will be found a most interesting book.

Friend Morgan, of the Palmetto State Banner, has our thanks for his courtesy. We shall not forget it. By the way, the Banner is one of our most interesting southern exchanges, and we wish it a long life of profit to its publisher.

What has become of our old friend, the Savannah Republican? We miss you much from our exchange list; have we forfeited your good will?

NOW READY.—BROTHER JONATHAN PICTORIAL DOUBLE SHEET, FOR THE CHRISTMAS HOLIDAYS, AND NEW YEAR, 1851.—It is known every where that this magnificent paper is the wonder of the world, as regards its immense size, splendid large Engravings, and astonishing cheapness. The beauty of this year's JONATHAN must astonish everybody! as the Engravings are larger and richer than ever. Indeed, it would be impossible to over-rate the splendor of this magnificent Christmas sheet.

The spirited picture of "The Country Girl in New York," is a master-piece of American Fine Arts, and occupies a double page of this mammoth sheet.

Another fine large picture is a group of spirited portraits at President Taylor's Death Bed, being the distinguished relatives and friends of the dying President.

Another gem is the "Dream of Love and Pleasure," a large picture occupying the first page, and pronounced the most beautiful and spirited original design ever made in America.

We have not room to enumerate a tithe of the beautiful engravings, popular reading, fun, frolic, anecdote, and Christmas repartee, which go to make up this stupendous sheet. Of one thing we are certain—it is by far the best and handsomest pictorial paper ever issued in America, or any where else.

Our arrangements are such that there cannot possibly be any waiting this year, no matter how great the demand.

WILSON & Co., 14 Spruce st., N. Y.

MECHANICS

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MANUFACTURERS.

The Best Mechanical Paper
IN THE WORLD!
SIXTH VOLUME OF THE
SCIENTIFIC AMERICAN.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarto Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED *ORIGINAL ENGRAVINGS*, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

It also possesses an original feature not found in any other weekly journal in the country, viz., an *Official List of PATENT CLAIMS*, prepared expressly for its colamns at the Patent Office,—thus constituting it the "*AMERICAN REPERTORY OF INVENTIONS.*"

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10 copies for 6 mos., $8 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $28

Southern and Western Money taken at par for subscriptions; or Post Office Stamps taken at their full value.

PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

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